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ART. 80.—*Cultivation of the Grape.—Letter from* W. ELDERTON ALLEN, Esq. *to Dr. Mitchill—continued from page* 81, *No.* 4.

I am aware that the sandy soil of this Island and many other places in this country, accompanied with the intense heat of the sun from about 2 o'clock in the afternoon to 5, or later, render the success of every description of planting very precarious the first year, and that shallow planting may seem inconsistent. The root, however, requires its share of warmth, as well as the plant; so much so, that in *a small way*, and especially in raising Vines from cuttings, or in planting newly imported plants, or such as may have been some time taken up, there is no plan so good or so certain of success, as that of putting each cutting, or plant, into a separate pot, and plunging the pots into mould, of the depth of the pots, covering a moderately warm hot-bed, and protecting the plants during the day by covering the glass with mats and giving plenty of air at the back by tilting the frames; and as soon as the plants have gained sufficient strength, the pots should be plunged in the ground, with the vines in them, in the place where they are ultimately to grow. This may be done towards July, or about the time of the midsummer shoot, and the pot be buried about three inches, and a basin, as it were, be formed with the surrounding earth, to facilitate any watering that may be afterwards required, in a dry or hot season.

The pots should not be wholly removed till at least the end of the next year, and then only piecemeal, by breaking them, early in the spring, by means of two or three blows with a hammer, slightly given; and such pieces being taken out as come away readily, without disturbing the roots, the pieces which remain being in no way injurious, and being, generally, easily taken away in the future course of dressing the borders, or ground, when the plants are established.

To those persons who either have not the convenience of first striking the plants in a bed, or who may not approve the plan, or prefer planting them off hand, where they are ultimately to grow, I would recommend the covering the ground for about a foot round the newly planted vines, or cuttings, with short but dry rotten dung, and the setting of three shingles round the plant, one at each of the points, south, west and east, so as to leave only the north open, in such a manner as to admit that small share of the eastern sun which a north aspect gets early in the morning, but so as wholly to protect the new shoots from the south and *west*—the *latter* especially—as I have observed that two hours exposure to it will often mar the best of prospects in a previously thriving plant, by grilling the young shoot, which generally terminates in the death, or at least most serious and perhaps irrecoverable check, of the plant itself.

I have gone more into detail, on this head, than I intended, from the knowledge that many persons, as lately as the last year only, were all but deterred from any future attempt at planting vines, owing to the non-success of their first—the plants dying all at once, in the best apparent vigor of the shoot, for the time. Add to which, those which I myself saved, were alone such as I had struck in frames, or protected out doors by shingles; consequently, the theory which I recommend is supported by actual experience in this country.

If the introductory remarks which I have submitted to you should be deemed worthy your notice, I shall have much pleasure in giving you, at any future opportunity, a series of remarks on the general cultivation and pruning of the vine under the various different modes, as practised in Europe; but as these will involve some length, and what I have already said may perhaps be thought more tedious than instructive, I shall conclude for the present by giving you an outline of the different methods of training and pruning to which I allude, as the intended subjects of my future communications, in case you should be desirous to have them.

To be brief—There are seven or eight, or more, different modes of out-door cultivation, and, as I say, all equally good in their way as varieties, when known, each suiting its locality; that under a judicious use of the knife; and especially the keeping the growth of wood within bounds by not leaving too many eyes on any of the shoots; that all may be adopted with safety, at least, if not with equal advantage; but as they can only be made intelligible either by drawings and a detail of explanations attached to each, or by an actual exhibition of the vine under its several cultures, I shall for the present only refer in general terms to such as happen to strike me as most common, and upon the whole answering every purpose.

First—The old English method, called by our old English gardeners, "stagging in," from the circumstance of the vine presenting the appearance of so many short stag's horns, similar to those of the small deer, projecting from each joint of the old wood, whence the fruit bearing wood proceeds in horn-like spurs, which system was much adopted in green and hot-houses in England, before the introduction of Mr. Forsyth's treatise on vines and fruit trees, which made some noise about 25 years ago; but, like many other new systems, his improvements are easier written about than put into useful practice, as far as the vine is in question.

Secondly—The best improved method of entirely covering walls, palings, or trellises, the vines being so arranged in the pruning as to give fruit on every part of the wall, fence, or trellis, from the ground to the top; by which, I have had walls and paling so thickly covered with young wood and fruit, that it would be scarcely possible to put the hand without touching the bunches of grapes—a system admirably adapted to trellis training in the open walks in this country, where, perhaps, close fences or walls might at times be too hot, or not admit sufficient air.

Thirdly—The combination of the second, or last, with the first method in horizontal training, where that position might be most convenient, along the fronts of houses, labourers' or other cottages and buildings in general, and especially in eastern aspects, this plan admitting of the laying the wood, some being old and some young, so close as to produce the most abundant crop possible, and at the same time an ample supply of wood for the future continuance of the system.

Fourthly—Training, "En Cordon," as the French term it, or rope-like, running horizontally at the tops of walls and pales with peaches, nectarines, the finest kind of gooseberries, apricots, figs, and the like, in the intermediate lower spaces, thereby rendering the whole wall productive, even to, and on its very top. The same system being also applicable to the sides of walks, with espalier vines or fruit trees on trellises, three or four feet high, beneath.

Fifthly—In vineyards, or open garden ground, with stakes, &c.

Sixthly—The German method, adopted on the Rhine, and in other districts; where those most delightful of all wines for a hot climate, Hock and Rhenish, are produced; and where the radiation of heat effected by the bright nights (similar to what is experienced here) and other causes, have induced the training of the vine higher from the ground than is usual in France; and to which, the naturally-more-acid quality of all Rhenish wines may be, in some measure, attributable.

Seventhly—The ancient Italian, or almost wild growth, more properly speaking, than cultivation; but which, to the numerous owners of large tracts of almost useless lands in this country, might not be a bad experiment, and one, of which nature has set the example here; and nature and art, combined with subsequent neglect, long ago produced in Italy; which might be tried at the expense of the first cost of a few vines.

Eighthly—The best method of planting and the general cultivation necessary to vines in green or hot-houses, which, though at present little thought of in this country, where nature is so abundant in due season, is not the less a luxury, insuring not only a certain crop, but a very superior quality of grape in the size and beauty of its branches and an early and late product, capable of being kept in a state of perfection for a considerably longer time than by any other means.

With regard to the sort of grape which will best suit this climate, taking the northern and mid-land states, it is fair to presume that, *laying aside*, for the present, *the question of Wine*, and *looking only to the Fruit*, those kinds which have formed the common run of the London market, in the grape season, for a long series of years, and which not only still continue so to do, (with the exception of a very few newly introduced black or red kinds,) but are also the sorts obtained in larger quantities in Paris than any other, would be the most likely to succeed here. There are, generally speaking, several varieties, or shades, of different small black grapes, which, in gardens in England, are all by common appellation indiscriminately denominated Black Cluster; and a white grape in England generally called, whether erroneously so or not, the Sweet-water, and in Paris the Chasselas, and Chasselas de Fontainbleau, the former being constantly sold under the more esteemed name of the latter, but the real Fontainbleau being far superior and known here by the name of Golden Chasselas. I am not now speaking of names scientifically, but by common usage and general parlance. The true Black Cluster is a small grape, bearing a remarkably fine bloom on the fruit, which is so thickly studded on the stork of the bunch, that it is as close and compact as grape shot. The better varieties, but all, as I say, more known in England as Black Cluster, and in France merely as Black Grapes, than by their real names, are those which have been introduced here as "Miller's Burgundy," (the right name being "Le Meunier," or The Miller, from the white powdered or dusty appearance of the leaves, like flour or dust from a mill)—the Pineau Noir, another Burgundy grape; the Meslier, the Bordeaux, and perhaps one or two others; after these common sorts, of White and Black, and which I think the best for a certain crop, are the White Lisbon, or White Madeira, (for it has

both names here), the several varieties of the Muscat, both black, white, grey, and red, or violet. These, however, though very fine and of delicious flavour, are not in general such good bearers as the more common kinds. For an experiment, the Muscat of Alexandria, is the best grape extant beyond all comparison, if the kind obtained is what is sometimes called the Golden Drop, which I have seen in particular seasons, exactly like so many large amber beads, tinged with brown, in bunches of 2 and 2½ lbs. weight, the berries also of an extra size and the crop abundant, but *always on old vines*, and seldom any where in Europe, except in the gardens of ancient mansions, and by no means common even there.

Thus far I have given you an outline of a few of the different modes of cultivation to which the grape may be subjected, without entering into any detail, or indeed doing more than exhibit its aptitude for all climates and all situations; and if you should think it any advantage that the choice of all the old European systems should be submitted in detail, to the more modern and daily improving cultivators of this country, I shall have much pleasure in sketching out a drawing of each, accompanied with the necessary explanations, by which all that is at present known on the cultivation of this truly luxurious and most desirable fruit would be exhibited, and all, or any one or more of the modes pointed out, might be readily followed, with the aid of a very little judgment and experience.

To the whole, I would submit such general observations as might occur, for the renovating and keeping up the constant succession of fruit-bearing wood, the best natural and artificial soils, &c. &c. &c.

I shall now conclude, with the hope that you will find an excuse for the unexpected length to which I have been led. I need not assure you that my sole wish is that of disseminating the little which I know on so interesting and agreeable a subject.

Being neither a cultivator, nor a vendor of the vine, I can have no interest beyond that of encouraging its growth by all who have room for a dozen, more or less, in their garden; being well assured that I shall receive their thanks, in thought at least, when the season arrives for their reaping the fruits of their kind condescension in having, through your means, paid me the compliment of giving sufficient credit to my representations to induce the reduction of my theory to practice.

Believe me, my dear sir, with the highest sentiments of regard and esteem,

Yours most faithfully and sincerely,

W. ELDERTON ALLEN.

Dr. Samuel L. Mitchell.

ART. 81.—***Observations upon the Natural Laws which govern the production of Double Flowers, arising out of a remarkable case of præternatural formation in the flowers of an Amaryllis*** *Read before the Horticultural Society of London, December 6, 1825—by* JOHN LINDLEY, F. L. S. &c. &c.

In September last, some dried roots of a plant called the Double Barbadoes Lily were, with several other things, sent to the Horticultural Society by Mr. John Herbert, Superintendent of the Botanic Garden at St. Vincent's, by the desire of His Excellency Sir Charles Brisbane, the Governor of that island. Upon blossoming last month in the stove, the Lily proved to be a variety of *Amaryllis crocata*, in which so considerable an alteration of the parts of fructification had taken place, as to produce a very handsome double flower. It is not however for the purpose of bringing into notice this particular variety, which has not now been produced for the first time, that I submit the following observations, but for the sake of recording one of the most singular instances of præternatural formation with which I am acquainted in the vegetable kingdom, and which appears to me to confirm an opinion I have for some time entertained, respecting the laws which regulate the production of double flowers.

It is well known that the cause of that kind of monstrosity which is commonly called a double flower, is either the multiplication or the transformation of the various organs which envelope the ovarium, or even of the ovarium itself; but I am not aware that it has been shown that actual changes of structure are subject to the influence of certain fixed laws, from which it rarely happens that any considerable deviation takes place. It has been stated by Sir James Edward Smith, [*Introduction to Botany, edit. 5, p. 220*] that the change of form in the various parts of a flower takes place backwards; but the question has been so cursorily treated in the work referred to, that I am induced to make some additional remarks upon the same subject.

It is well understood that the universal principle upon which perfect vegetables are formed, is by the continual addition of parts one above the other, round a common axis which is produced by their accretion. This law is not confined to the production of foliage or branches only, but must be considered to extend to the ultimate point of vegetable developement in the ovarium; and seems to indicate that the progress of nature is continually onwards. Unless, therefore, it could be shown that the order of alteration in the structure of organs so produced is in monstrous formations reversed, it would be a reasonable inference that nature follows her usual course in transformation, as well as in original production, and that the changes which particular portions of a flower may undergo,

always have the character of that series which is placed next them in the inside, and not of that on the outside. The consequence of the prevalence of such a law would therefore be this with respect to the formation of double flower, that bracteæ, if present, would change into calyx, calyx into petals, petals into stamens, and stamens into ovaries; and that the reverse of that order could not take place. Alterations indeed of another kind may happen, such as changes in the appearance of stamens, occasioned by abortion; but such metamorphoses are to be considered imperfect attempts on the part of particular organs to revert to their primitive forms, and are analogous to the alterations of the ovarium, which I shall have presently occasion to notice, but they do not affect the present question, which concerns only the law of transformation of one organ into another organ.

I am not ignorant that the common belief upon this subject may be against the opinion I venture to entertain; I am aware that the usual explanation of the cause of the monstrous multiplication of the parts of a flower is the conversion of stamens into petals, and that, as I have already stated, a Botanist of high consideration has recently expressed his opinion, that such changes take place backwards, or in an inverse order to that of first developement. But, if the common explanation were admitted with respect to these alterations, it would not be easy to show the cause of the greater beauty of double than of single flowers, because the inevitable consequence of a reversed order of transformation would be, that the rich or delicate color of the petals, upon which all flowers depend for their beauty, would be converted into the uniform green of the calyx. Such a change, therefore, instead of producing a flower more beautiful than its original, would tend to destroy its beauty.

But if the true order of alteration be such as I have described, if it takes place upwards, or, speaking more plainly, from the circumference to the centre, and if the different organs of fructification are only susceptible of being converted into those which are next between them and the axis of inflorescence, and if no retrograde action takes place, the reason of the superior beauty of double flowers will be obvious. In the latter case, the calyx may indeed throw off its dull green color, and assume the vivid hues of the petals, as in the Pœony and Primrose, and the petals may dilate themselves, and in attempting to perform the functions of stamens may multiply and transform themselves in the transition into an hundred curious and grotesque appearances; but no diminution of beauty, or loss of brilliant colors will take place. It would also, I think, be reasonable to conclude, in the absence of more satisfactory evidence, that a given organ would in its transformation bear a more perceptible resemblance to that from which it was changed, than to that towards which its form was altering. Now it is obvious to every observer, that in double flowers the metamorphosis which takes place between the petals and stamens bears a far greater resemblance to the former than to the latter.

Independently however of these considerations, an attention to the nature of the alterations which take place in the centre of double flowers appears to me to prove that it is impossible that any retrograde action can influence the præternatural alteration of the parts of fructification. If we examine the various double flowers with which our gardens are enlivened, we shall find that the ovarium either continues to maintain its original form, notwithstanding any changes which may take place around it, or, that it is altogether abortive, or, that it at once reverts to the state of a leaf, thus assuming the original simple form of which it would in its perfect state be a modification; as happens in what are termed proliferous flowers; but I am not aware that any example exists of the ovarium ever indicating the smallest disposition to become a stamen, or to retrograde; if altered, it either becomes abortive, or reverts to its primitive type; as in the double Cherry mentioned by Sir Edward Smith, in which the ovary had changed to a leaf of the ordinary appearance.

The contrary of this, namely the change of stamens into ovarium, in which the progressive action takes place, must be familiar to the recollection of many. The curious case of the Common Wall-flower (*Cheiranthus Cheiri*) in certain individuals of which the stamens constantly undergo this alteration, is one instance; that of the House-leek (*Sempervivum tectorum*) the anthers of which are frequently filled with ovula instead of pollen, affords another, and the double Barbadoes Lily, the subject of this communication, is a new instance.

Of this plant the petals were in the usual position and state, except that their points of union at the base, was a slight tendency to distortion. Inside of them were nine other petals, quite similar to the exterior, and like them united at the base in an irregularly imbricated way. These I consider to be merely supernumerary petals, no tendency to an alteration of form being perceptible in them. Next these in the inside were nine other petal-like leaves, which were much distorted and frequently halved down the middle, having a more or less perfect indication of an anther on either side. Here then the multiplication was bringing on transformation, and exhibiting in an obvious manner an attempt on the part of the multiplied petals to assume the functions of stamens by the formation of a polliniferous receptacle. Upon one of the most interior of the transformed petals above the unguis, I observed the presence of that glandular fringed process, which in the perfect flower is placed at the ori-

fice of the tube of the corolla ; where it forms a sort of annular excrescence. This fact alone might, even if unattended by any other evidence, be considered conclusive that the conversion, which was operating, was of the petals into stamens. Among the petaloid bodies were intermixed four unhealthy stamens, bearing anthers of the natural form, their filaments being neither petaloid, nor altered in any material degree from their usual appearance, except being shorter than common. The place of the ovarium was occupied by a deformed subulate process, much shorter than the petals, and cucullate at the lower end, where it enwrapped two other smaller appendages. In the usual situation no trace whatever could be perceived of ovula, but upon a more careful examination, I discovered three different places at the base of the innermost staminoid petals, where ovula were produced in sufficient abundance. In two cases the ovula proceeded from the edge of the body to which they were attached, and in the other case, two only appear from a point which I did not discover to be marginal in respect to any organ. In the latter instance these ovula were collateral, in the others they were imbricated vertically in a single row.

From this description it appears that the male organs were converted partially into female, by the addition of ovula to their base, and that the ovaria themselves indicated no disposition to assume the functions of males, but were nearly obliterated.

This and other circumstances have therefore led me to conclude, as has been already stated, that the same laws which govern the production of the various organs of vegetation, exercise an undeviating influence upon their transformation also ; that the latter consequently proceeds upwards in the order of developement, or from circumference to centre, and that the popular opinion held upon this subject is no founded on a just consideration of all the facts connected with metamorphosis.

That exceptions to this law may exist, although unknown to me, I am prepared to anticipate, for no attentive observer of nature can be ignorant of the singular caprice which it is her privilege to exercise or of those frequent anomalies which show how incomprehensible are her operations, and how little the human mind is capable of understanding her mysterious workings ; but I think it may be affirmed that the principle above laid down is that by which she is guided in the great mass of her creations of this kind.

Before I conclude, I wish, in order to prevent misconception of my meaning, to observe, that the changes in the parts of a flower which take place either by multiplication, or transformation, or abortion of particular organs, are altogether of another nature from those which happen in Compositæ, where impletion is only apparent, and in which the metamorphoses depend upon laws of a different kind.

ART. 82.—*On the Culture and Manufacture of Tea, communicated by an American gentleman, for for the N. Y. Farmer and Horticultural Repository.*

You ask of me some notices of the state of Horticulture in Brazil. It would be as easy to furnish you with a sketch of the notions upon political economy entertained by the Patagonians, or an elaborate essay upon the state of the fine arts among the Hottentots. A people who know nothing of butter, except as it comes to them salted from Ireland, and who derive all their potatoes from the same country, cannot be supposed to have made any very brilliant discoveries in Farming or Horticulture. It is accordingly of the simplest kind. They get as much from the earth as can be obtained with the least possible trouble, and smile incredulously if you tell them of the importance of paying more attention to the introduction and culture of foreign vegetables. Of late years the numerous French, English, and American residents have shown them the possibility of raising these vegetables, and one may now see in the markets occasionally cabbages, turnips, and even sallad! There is, however, a Royal Botanic Garden, formerly under the direction of a skillful German, but now going rapidly to decay under the slothful management of a Portuguese Carmelite Friar. As this garden has obtained some celebrity in books of travels, I will furnish you with a few remarks which I made when I visited it in 1826–7. And as the most interesting feature of this garden was the extensive tea plantations, I herewith furnish you with such notes as relate more immediately to that subject.

Tea plants occupy a space of from 8 to 10 acres in the garden. They are planted at the distance of four feet from each other. They are handsome shrubs, about two feet in height. When I saw them they looked rather bare, as they had been recently stripped in part of their leaves. This is repeated several times during the year, and hence arises the different sorts we have in the market. No particular care seems to be taken of the plants, and they bloom in the months of July, August and September. You are aware that the old King of Portugal, Don John, when driven to Brazil, took great pains to introduce the cultivation of the tea-plant. He not only obtained the plants, but also two or three hundred Chinese who were perfectly acquainted with their management. They are now scattered about the country. I have several times been accosted by these people with a request to purchase some tea, samples of which they carried with them. It made one almost fancy himself in the celestial empire.

The most curious circumstance in relation to tea is the ease with which it is prepared for market. I witnessed the whole operation and can therefore speak confidently on the subject.

The gathered leaves are exposed to the air for a few hours, until they begin to *wilt*, as it is popularly called. They are then thrown into circular pans set in brick work, under which is a moderate fire. These pans are of iron, four feet in diameter and a about a foot deep; the leaves are stirred briskly about in these pans for ten minutes or longer according to the judgment of the operator, when they are thrown out to another person who is ready to receive them. This person holds before him a flat wicker or willow frame about two feet wide and four feet in length, slightly inclined toward the floor. He strews the leaves upon this frame and lays over it another frame of the same dimensions and materials. This is moved rapidly to and fro for several minutes, and by this simple operation the leaves are curled up and fall at the lower end of the frame into baskets conveniently placed for their reception. This part of the process surprised me exceedingly, for all travellers assert that every leaf is rolled up separately by hand, and I have even heard it maintained that it is only the small and delicate hand of a Chinese that can be advantageously employed for this purpose. Those leaves from which the moisture has not been sufficiently expelled, remain adhering to the frame, are of course not affected by the process, and are returned again to the heated pans. When a sufficient quantity of the curled leaves has been obtained, they are placed for a short period over a strong fire to drive off any remaining moisture, and are then put up into papers or chests for immediate use.

I enquired how much tea could be obtained annually from a single shrub, but no one appeared to have ever thought upon the subject; they were unable at least to make even a tolerable guess about it. Judging from the size of the plant and the number of times it is stripped, I should conjecture that each plant would produce about three pounds annually; and this I think is still within bounds.

It is propagated by slips, and was of the species *T. viridis*, or green tea.

I do not know if any attempts have been made to introduce the cultivation of the tea plant into the United States, but if it could be once introduced, I have not the least doubt but that it would be a much more profitable crop than cotton or sugar. Six men could cure and prepare for market the crop of a hundred acres; and the most laborious or tedious part of the operation, the picking and assorting the leaves would only require the aid of women and children.

At a time when the English are straining every nerve to introduce the culture of the tea plant into their East Indian possession, under the expectation of being at no distant day shut out from the Chinese market, it may well be worth our while to enquire whether we cannot render ourselves independent also of a foreign supply. I do not pretend to any very profound acquaintance with the "metaphysics of commerce" as Political Economy has been called, but I should certainly think, that our tea trade cannot be very profitable to the country, as it is one, in which neither our staple commodities nor the the products of our manufacturing industry, are given in exchange.

But let us examine whether our climate or soil offer any impediments to the successful introduction and cultivation of the tea plant.

There is perhaps no country in the world whose climate resembles our own so much as that of China. This country extends with a medium breadth of 600 miles along the eastern sea; and is included between the 22d and 41st degrees of north Latitude; North Easterly winds prevail and bring with them the same kind of weather which we experience in the United States. From a meteorological table derived from Dr. Lynn who accompanied the English Embassy in their travels from the southern to the northern extremity of China, it appears that during the months of September October and November, the thermometer varied between 45 deg. and 75 deg. though it was rarely as low or as high as either of these points. There were frequent and sudden changes of temperature amounting to 10 or 15 and were 20 degrees within the twenty four hours. Our Dr. Rush had long ago pointed out in some of his philosophical essays the very great resemblance in these particulars between the climate of China and that of the United States, and hence we may conclude that there is nothing in our climate to prevent the successful cultivation of the tea plant.

Dr. Abel mentions that the green tea district is embraced between the 29th and 31st degree which corresponds to the northern parts of Georgia Alabama and Mississippi.

The black tea districts are confined within narrower limits, that is to say, between the 27th and 28th degrees of North Latitude. Florida Louisiana and Texas would correspond with this in the United States.

But as the temperature of those States which lie to the west of the great apalachian ridge of mountains is much higher than in corresponding latitudes on the sea coast, I confidently expect that the tea plant could be successfully cultivated in Tennessee Kentucky and Illinois. It must, however, be remembered that these limits assigned by Dr. Abel to the tea districts in China, are not fixed and permanent. Circumstances which the proverbially cautious policy of the Chinese do not permit us to unveil, may perhaps, have confined its more general cultivation to a district

of not more than 250 miles in extent. It is found, however, rowing in the latitude of 32 deg. corresponding nearly to that of Savannah in Georgia, and we know from Kempfer that it is successfully cultivated in Japan, as far north as the 45th degree of Latitude. It has also been introduced at St. Helena, at the Cape of Good Hope, and as we have seen above at Rio de Janeiro.

Having thus shown that there is nothing in its geographical situation opposed to its introduction into the United States, let us examine the nature and composition of the soil upon which it is most extensively raised in China.

The intelligent author above quoted, states that it appeared to be most generally cultivated on sides of mountains, where there can be but little accumulation of vegetable mould. The plantation at Rio de Janeiro, was on a level plain composed of loose sand, resulting from the decomposition of granitic rocks. As far as the tea districts of China have been examined, the rocks of the country are found to consist of sandstone, slate, and granite. The result of all observations has clearly shown that for the successive cultivation of the tea plant, nothing more is required than a meagre soil and a moderate temperature. Both these requisites I believe may be found in our country; it only remains to mention one circumstance that may be supposed to be adverse to the raising of tea. We are accustomed to see it occasionally in our hot houses, and hence we might be led to conclude that it would not flourish in the open air all the year round. The only meteorological table to which I have been able to refer, shows that in the latter part of the month of November, the thermometer stood in the black tea district at 40, and the observations for that month, showed a continual and regula decrease of temperature. We all know that ice and snow are familiar occurrences in the northern districts of China; and we have already seen what a striking resemblance there is between that climate and our own. I conclude then that the tea plant might withstand even severe frosts; and I am not acquainted with any circumstance to oppose its introduction into the United States. Respectfully Yours,

I. E. D.

ART. 83.—*Remarks on the cultivation of an early variety of Potatos, read before the Farmer's Society of the town of Florida, by Dr.* S. REYNOLDS.

Among the innumerable vegetable blessings, which a benificent Providence has showered around us, there are very few of more importance than the potato.

To say nothing about their extensive use in feeding cattle, hogs, and poultry, as food for man, they stand preeminent above all other roots. All ages, and almost every individual of the human family, feed with avidity and delight upon them. So great indeed are their merits, that they are now to be found in every latitude where men obtain their food by cultivating the earth.

In the torrid zone, they abound with native luxuriance; and in the frigid, contribute to the wants of man. Throughout all that broad and intermediate space, they have become a necessary of life. There is no other plant which so soon and easily accommodates itself to such a diversity of soils and climates.

They were, I believe, first brought to Europe by Sir Walter Releigh, from the southern part of this continent, and were planted in his garden, not as any thing useful, but as a curious exotic; and it was many years before the value of the tubers were known, for the original ones are said to have been poor, and such as we would not eat at this day. Fortunately for the world, the art of gardening had then begun to receive sonsiderable attention. Some inquisitive gardener planted the seeds, or balls, which grow upon the top of the plant; from these, several varieties of a better quality for kitchen use were produced, and the nature of the plant, and the nature of improving the breed were discovered. Yet it was more than a hundred years after this event, before they found their way into the best cultivated gardens. And, since my recollection, they were not thought of as a field crop. The varieties then were few, and these either strong and watery, or small and unproductive. But of late the varieties have very much increased, and with that their usefulness has become greatly augmented. For a long time past, we have had fine potatoes, for autumn, winter, and spring use; but it is only within a few years that I have had good ones in the summer. Several experiments have been resorted to, in order to preserve the old roots until the new ones were ripe, but all without success. By or before the middle of June, the old potatoes however carefully laid up, become shrivelled and watery, and almost or quite unfit for the table. At this time the new ones are just beginning to form, and are yet small and tartless, and so continue for several weeks. T supply this destitute period, I have found a kind of potato which planted in a warm situation and on good soil, will contribute an abundant supply for the table, before the old ones become useless. They were brought from a very northern latitude to this place, where they had become habituated to the short summers of that climate, and will here ripen in forty or fifty days after they vegetate, and appear above ground.

These potatoes are white, smooth, with few eyes, and of a large shape, generally a little flattened, and

as they came to me anonymous, I have given them the name of the Florida whites. Last spring, I received from Mr. Thorburn, seeds-man of New-York, a sample of *his* earliest potatoes. I planted them by the side of mine, and upon the season day. They were nursed and attended alike, and the Florida whites were ripe full ten days before those I had from New-York. I have planted them for four years, and have always found them a great acquisition; nor do I think they deteriorate in any respect, but have every year improved in size. For the last two years I have planted them upon a good soil, highly manured, with coarse stable dung. By the first of August, the tops turned yellow and died away. I then caused the roots to be dug and the land to be finely ploughed and levelled with the harrow. Turnip seed was then sowed and covered with a light harrow, and the ground pressed with a heavy roller. At this late season I experienced no injury from the fly. The turnips were thinned out, kept free from weeds, and I have both years had an abundant crop of solid fine turnips.

The cultivation of the potato appeared to answer all the purposes of a summer fallow, so that I have reason to think my turnips were as good as if I had taken no previous crop.

In conclusion I would remark, that there is perhaps no part of the state where potatoes of a better quality are grown, than in this town. Our aluvial and our black loomy soil, is peculiarly suited to the growth and perfection of this root. Our hot, and frequently dry summers, may prevent our potatoes from being as rich and delicate as those of the Irish, yet whenever we attend to them with the same care and skill that they do, our crops are large, and the quality good.

[For the New-York Farmer and Horticultural Repository.]

ART. 84.—*On the Cultivation of Live Fences.*

This is a subject of the utmost importance to the farmer, in those sections of our country where timber for fuel and for fence is becoming scarce, and especially those more durable kinds generally used for enclosures.

There are lands, large districts, on which no lasting timber spontaneously grows; and the expense of keeping a large farm in good dried fence is so considerable, unless in possession of the most durable materials, that it consumes all the profits derived from the cultivation. Stone wall, when the materials are at hand, and serve the double purpose of clearing the fields of those obstructions to the plough, and making an indestructable fence, is doubtless cheapest in the end, though attended with much labour and expense in the construction.

The culture of live fences is treated of at considerable length, and with ability in the third volume of the Memoirs of the board of Agriculture of this state, by a gentleman of Saratoga. This writer considers the haw-thorn better adapted to the purpose than any other shrub, and proceeds to detail with much precision the mode of cultivation.

But from considerable reflection on this subject for some time past, and observation of those plants, the qualities of which entitle them to a preference for this purpose, I am induced to believe the juniper, or red cedar tree, possesses those requisites to a greater degree, than any other with which I am acquainted. The hardy nature of the plant—the care with which it may be cultivated, in almost any soil or climate, is evinced from its spoutaneous growth in old neglected fields, from the berries which it produces in great abundance. Its property of growing more densly than any other tree which attains an equal size, and the lasting and valuable timber it produces when full grown, and at maturity, are distinguished qualities which go to give it a preference, for cultivation as live fence, in my estimation, over any other tree or shrub.

Some may object to the cedar, as growing too large, thereby producing a shade on the borders of the fields, much to the injury of the crops growing there on. But the protection they would afford against the autumnal and wintry blasts, which frequently sweep over our fields, carrying with them the best particles of the soil, would amply compensate for the injury sustained from the shade; or by loping and pruning, they may be kept in such a state as to make but little shade as they produce no additional scions under this operation. The cedar, unlike the haw-thorn, must vegetate very quickly from the short time in which it will overspread a field, where large trees of this species are growing on its borders, the land having been previously cleared and afterwards suffered to lie dormant for a few years. I have frequently seen them bordering the highways on the north side of Long Island, spontaneously growing so closely together as to form almost an impervious hedge row and and fine fence. The most easy and expeditious way of propagating cedar for fence, where the young trees may be had from the old fields and woods free of expense, is doubtless by transplanting. But I had hitherto considered the cedar, like other evergreens, difficult to transplant with success; until some time past, conversing with a friend on the subject, he informed me that he had been in the practice of transplanting them for the purpose of fence, for several successive seasons, and that he had experienced no difficulty with ordinary ones, in making them live and flourish well. In cultivating the cedar from the berries, having determined on the location, which, for convenience, should be by the side of an

old fence--form a ring by passing two or three times forth and back with the plough, and on this ridge plant the berries; and after being up, thin them out and prune them as their growth may require; by this means, in a few years, may be produced a beautiful hedge row.

[For the New-York Farmer and Horticultural Repository.]

ART. 85.—*Account of the nature and state of American Horticulture, formed from a long series of actual practice and careful observation.*

The writings of several eminent Botanists have exhibited to the public descriptions of a vast variety of vegetable productions indigenous to this country; amongst which are to be found many of the most valuable productions of the earth. And whether we survey the catalogue of our native plants in a useful or ornamental point of view, we behold a collection of the bounties of nature that might justly entitle these United States to the character of a garden. England is justly considered to excel in Horticultural refinement perhaps any other country in the world; yet her want of that congenial warmth of our American summers, subjects her to a vast expense and pains to bring to maturity the extreme variety of delicious fruits and vegetables that arrive here to the greatest degree of perfection on our unsheltered exposures, throughout almost the whole range of the United States territory. Who can behold the vast field of maize, or Indian corn every where to be met with interspersed with the water-melon, the fine crooked necked and bell-shaped winter squash, the pumpkin, the cucumber, and all the fine variety of Persian melons, kidney and June beans, &c. and could say that America was deficient in variety or quality of garden products. Because scarcely any writer has hitherto exhibited her true horticultural character to the world, she has been hooted and sneered at, in this respect, by the most gross ignorance and vain bigotry of foreign conceit; in countries where the cucumber and melon, &c. can only be brought to maturity by the aid of hotbeds, and where all the finer kinds of fruit and vegetables require the shelter of high garden walls, their inhabitants are ever ready to exclaim when they visit this country and behold no such precautionary arrangements for garden products, that Americans are no gardeners. And notwithstanding the unparalleled absurdity of such doctrine, no man, so far as I know, has ever lifted his pen to exhibit the true state of this matter and to rescue our country from that erroneous impression that is calculated to depress and retard that spirit of horticultural enterprize which our citizens only want to know they are actually possessed of, in order to repel that influence of degradation that clouds the lustre of her native ore. Barely to assert that gardening was both understood and practised by Americans, would be but a similar argument to those who hereby deny both. But let us take an actual survey of the products of the extensive fields in the vicinity of our large cities and observe the luxuries that denote the toils of the yeomanry of all the old settlements, and if we do not find ourselves situated in the midst of the finest and most abundant garden products, I know not where we can go to find a country more deserving the title of a horticultural one. Here it may be asked, what are those fine garden products that are cultivated so extensively and brought to such perfection in the vicinity of our large cities and throughout the country generally? I answer first, all the most valuable and such as are only cultivated in gardens in England. And secondly, several very superior sorts that can scarcely be brought to maturity in England at all, such as the Lima beans and winter squashes, &c. We do not contend that the science or art of gardening is generally so well understood in America as in England. But we have no hesitation in asserting that, owing to the superior congeniality of American climate, her garden products in many respects far exceeds those of England. What has she, for instance, to compare with our Indian corn, our Lima beans, our winter squashes, our water-melons and pumkins, that are here numerously cultivated together with the great variety of fruit and orchards that flourish in great perfection all over our country, and of the products of which every grade of every rank in society partake of in the greatest abundance. In England, it is true the sick and the great are enabled at a great expense to partake of many of those finer garden products, which the American farmer is frequently in the habit of distributing large portions of to his hogs. And yet Americans are looked upon by the generality of Europeans as possessing a country far inferior to theirs in garden products. But this is altogether a mistaken notion, for the benignity of the American soil and climate make well up for any deficiency in skill or science on the part of the cultivator. Nor are the cultivator so extremely dependent in these qualifications as strangers are very apt to suppose.—America is comparatively but a new country, and her inhabitants have wisely pursued the most economical means for obtaining the most useful results from their industrious pursuits; but she is far from being insensible of the beauties of refinement. And the golden rays of rural improvements that already decorates the country residences of many of our wealthy citizens, together with an increased taste for horticultural improvements, bespeaks the approach of an opening day that will soon add a shining lustre over all our rural establishments. For it is certain that if

we have succeeded so well in our horticultural products by the very moderate means that has hitherto generally been applied, what may we not expect by additional degrees of care and pains in improving that delightful pursuit for the advancement of which our soil and climate are so particularly favourable.

A more particular survey of our horticultural improvements with suggestions for their future promotion, will form the subject of my next address to you. I conclude by expressing a wish that some of your able correspondents would give a history of American agriculture.

AN HORTICULTURIST.

New-York, May 1828.

ART. 86.—*Outlines of Horticultural Chemistry: —Manures.* By G. W. Johnston, Esq. of Great Totham, Essex.—Continued from p. 69.

I shall now proceed to consider manures; a class of bodies of the first importance to the cultivator of the soil, yet of the economy of which he is generally most ignorant, inasmuch as their judicious employment requires considerable chemical acquirements. Every substance capable of increasing the fertility of a soil, when incorporated with it, is a manure; hence, the earth, when applied to regulate its retentive powers, are actually manures. Manures, are animal, vegetable, and mineral; they *directly* assist the growth of plants, 1st, by entering into their composition; 2dly, by absorbing and retaining moisture from the atmosphere; 3dly, by absorbing the gases of the atmosphere; 4thly, by stimulating the vascular system of the plants. Manures *approximately* assist vegetation: 1st, by killing predatory vermin and weeds; 2dly, by promoting the decomposition of stubborn organic remains in the soil; 3dly, by protecting incumbent plants from violent revolution of temperature.

All these properties seldom, if ever, occur in one species of manure, but each is usually particularised by possessing one or more in a superior degree. That is the most generally applicable manure that is composed of matters essential to the growth of plants; the chief of these are carbon, hydrogen, and oxygen, therefore all animal and vegetable substances are excellent manures. It would evidently be of great benefit, if every plant could be manured with the decaying parts of its own species; the ancients made this a particular object in some sorts of their agriculture. We read that those vines were the most fruitful, which were manured with their own leaves and prunings and the skins of expressed grapes. (*Crescentius Agric.*, § 2. c. 6.) This rule might be so far followed, as that the stems of potatoes, peas, &c. could be dug respectively into the compartments where those crops are intended to be grown in the following year.

The following table shows the relative constitution of common stable manure and our usual crops:—

Stable Manure.	*Crops.*
Carbon, Hydrogen, Oxygen,	These are chief components of all plants.
Nitrogen, - -	In some vegetables.
Carbonate of lime,	In almost all plants.
Carbonate of soda, Benzoate of soda,	
Muriate of potash,	In cucumbers, garlic, &c.
Muriate of soda,	Perhaps in all plants.
Sulphate of soda,	
Sulphate of potash,	In cucumbers, garlic, &c.
Magnesia, -	In all corn, and many other plants.
Phosphate of lime,	Potatoes, onions, &c. &c.
Oxide of iron, .	In most plants.
Alumina, Silica,	In most plants.

Stable manure, and for the same reason every other manure composed of animal or vegetable remains, is evidently valuable to plants, by affording them such matters as they are composed of. But this is not the only reason that manures are beneficial; for in that case mere decayed parts of their own species should be the most fertilising applications. There is no doubt that plants are essentially benefitted by such applications; but why do potatoes, for example, grow more luxuriant on ground manured with sprats, than on that manured with the dung of horses, and both these superior to the same crop grown on a plot manured with the decayed parts of its own species? Apparently, because the manures mentioned decompose with a rapidity exactly proportioned to the order of benefit. Sprats decompose, and their parts become soluble and capable of introsusception, first and most rapidly; then the dung of animals; lastly, the vegetable remains. All the less solid animal matters decompose with greater rapidity than vegetable matters: hence the dung of such animals as are carnivorous is the most prompt in benefitting vegetation; witness night soil, pig's dung, &c; but such manures are not the most permanent. Hassenfratz manured two portions of the same soil, No. 1. with a mixture of dung and straw highly putrefied; No. 2. with a similar mixture, newly made. He observed that during the first year the plants in No. 1. produced the best crop, but the second year (no more dung being added) No. 2. produced the best crop; the result was the same the third year, after which both seemed alike exhausted. (*Ann. de Chimie*, xiv. 57.) The same chemist found that a soil manured with wood shavings, did not, during the two succeeding years, produce a superior vegetation than the same soil without any manure; the third year, however, it was better, nor was it until the fifth year that it reached the maximum of fertility. The site of a wood-stack and the newly cleared lands of America are eminently fertile, from the gradually decomposing remains they contain.

These facts and observations teach us that the most prompt manures are the reverse of being economical: vegetable remains, incorporated with a soil, will insure an average produce during several years; animal matters and dungs highly putrescent are powerfully but transiently beneficial. Putrefaction is evidently the means of rendering these substances available to plants; hence thoroughly decayed stable manure is equally employed by gardeners, as being of immediate benefit, admitting of clean husbandry, and as economy is not in private establishments the general presiding genius of the gardeners. If stable dung or other manure is allowed to putrefy in an unenclosed heap, the loss is immense; all the gasses which pass off during the decomposition, all the soluble matters which drain away, are highly nutritious to plants, as has been proved by Davy and others. If the decomposition is thus allowed to proceed, until the heap becomes a saponaceous mass, the loss cannot be less than 50 per cent. Notwithstanding all the reasoning of chemists, however, putrefied dung will continue to be used; it admits of clean workmanship, with less labour, and insures a good immediate crop: to prevent loss as much as possible, therefore, the dung-heap should be in a brick cistern, and covered over with earth at least 9 in deep, with a well at one corner to retain the drainage, which, from time to time, should be returned over the heap.

The chief component of plants is carbon, and we shall not be far wrong if we estimate it as constituting 50 per cent. of every vegetable; it is the decayed organic remains of the soil which supply a considerable proportion of this to the growing plants. It is a subject of debate among chemists, how the carbon of manures is imbibed by plants. Carbon, say they, is insoluble, and experiment has demonstrated that the roots cannot absorb it in a solid state. Sennebier, having observed that water impregnated with carbonic acid, when applied to the roots of plants, was beneficial, concluded that the carbon of manures is converted into carbonic acid, and is in the state imbibed by them. (*Phys. Veg.*, v. iii. p. 55.)

Thomson, in an early edition of his *System of Chemistry*, gave a still more elaborate theory, which being in subsequent editions omitted, we have no necessity to demonstrate absurd. I consider that the facts of which we are in possession, if progressively estimated, place the subject in a very clear light. Saussure found that a soil deprived of its soluble matters, by repeated decoctions with water, would not support vegetation so well as that portion of the same soil not so deprived of its soluble constituents (*Recherch. sur la Veg.*, cv. § ii. p. 170.) The extract thus obtained was evidently composed of saccharine matter, mucilage, extractive principle, &c. These, we know, are nutritive to plants, and are elaborated and assimilated by them after introsusception. Now, vegetable substances, as straw, &c., gradually yield these soluble matters as they decay. Straw, wood, leaves, &c., consist chiefly of woody fibres; to convert this into saccharine and mucilaginous matters is the work of putrefaction; to effect this, oxygen must be absorbed, and the extra proportions of carbon be got rid of, as is evident from the following table of constituents.

	Woody Fibre.	*Gum.*	*Sugar.*
Carbon - -	52·53	42·23	27·5
Oxygen - -	41·78	50·84	64·7
Hydrogen - -	5·69	6·93	7·8
	100·00	100·00	100.0

That such processes actually do occur, Saussure has demonstrated by experiment: he found that moist wood, exposed to the air, absorbed oxygen, evolved carbonic acid, and water was evidently decomposed. Thus, then, putrefaction seems to render organic matters fit for the nourishment of plants, by converting them into saccharine and mucilaginous compounds, capable of solution in water. Hence the phenomenon of wood, which is slow of decomposition, being a permanent manure; animal matters, which rapidly putrefy, being transient, though temporarily powerful: hence the economy of using partially decomposed composts is also rationalised; when completely decomposed, its soluble matters, being more than can be consumed at the time by the crop, pass away with the drainage water, much is lost in the state of gas, and all that is left are a few earthly, saline, and carbonaceous particles, of comparatively little value.

Of the less general manures, which benefit plants by entering into their composition, a few words will suffice. Sulphate of lime (gypsum) is a component of clover, lucerne, turnips, &c.: hence it has been applied, with benefit for these crops, to such soils as did not already contain it. Bones, broken small, have lately become a very general manure; their benefit, which is very permament, is easily accounted for. The bones of oxen contain about 50 per cent. of gelatine, which is soluble in water, and rapidly becomes putrescent; the remainder is chiefly phosphate and carbonate of lime, salts, which are components of wheat, rye, barley, oats, peas, beans, vines, cucumbers, potatoes, garlic, onions, truffles, &c. Common salt, also, is employed as a manure, and is beneficial, partly in consequence of entering into the constitution of plants.

ART. 87.—*Remarks—On the management and culture of Camellias, by Monsieur LeChevalier Soulange Bodim, Founder of Fromont Garden, and Secretary General of the Agricultural Society of Paris. Translated for the N. Y. Far. & Hor. Rep.*

Many of our Correspondents complain of the difficulty which they experience in preserving their Camellias, and especially that of bringing them into Flower, after the trouble of two years cultivation and attention; so much so, that their whole compensation and enjoyment is reduced to the simple possession of a handsome green plant.

The Camellia, it should be observed, is by no means a tender shrub, and so far from being improved, seldom fails to be injured, by the excess of misapplied care most commonly bestowed upon it.

A great number of other plants also suffer equally, in the hands of many amateurs from a want of Knowledge of the management necessary to bring them to perfection, but their loss is not so much felt as that of the Camellia, from the circumstance of their being less a novelty and consequently exciting a minor degree of interest.

The Camellia requires a medium temperature, resembling as nearly as may be that of its native country; a fine rich mould, rather warm and dry than otherwise; and the aspect, if it is in the open ground, should be such as will protect it from the great heat of the sun.—If, on the contrary, it is in a green house its position should be that which will in winter, give it alternately the greatest share of sun-shine, and in summer allow of its exposure to the refreshing air from the north and at the same time protect it from too much heat.—It requires a great deal of air, but should be sheltered from the wind.

The most essential point to be attended to, in the Camellia is that of not putting it into too large a pot—a fault too common with most cultivators and on which it is imposiible to lay too much stress—a due proportion between the pot and the ball of earth necessary to the plant which it is to contain, should be considered as a law in cultivation, and any error in this particular of a contrary tendency cannot fail to mislead those who adopt it from the supposition that the nourishment of the plant depends solely, on the quantity of earth by which the roots are surrounded.

Another very common mistake is that of bog earth being absolutely indispensible to the healthy growth of the plant, and the general and inconsiderate use of it can only be attributed to idleness in the cultivator. The Camellia succeeds far better in a good free-working mould, fine in its texture and rather sandy; or rendered so by a mixture of one third fine sand, or bog-earth, with the addition of one third good vegetable mould, produced from old well rotted leaves; the other third being good garden mould. This compost, even when used immediately after mixing, lets the water pass freely through it and at the same time retains a sufficient quantity, while the roots penetrate it with ease, and it not only absorbs the necessary portion of gass from the atmosphere, but maintains, for a long time, that principle of fermentation which aids the giving off of such of a subterraneous kind as insinuate themselves in the vegetable kingdom, and facilitates the reduction of the carbon into the required gaseous state for absorbtion.

With regard to watering the Camellia, it should at all times be done very moderately—more abundantly at the flowering time and when the sap is at its highest rising term; but when the plant is done growing for the season, the watering should be extremely sparing.

It is an established principle, that plants in pots require very little water to their roots. There is not anything which weakens all descriptions of vegetables and shrubs so much as that constant emersion of their roots in water, to which they are often subjected by repeated and injurious inundations. The state of relaxation and langour, into which the lower organs fall in consequence, is very speedily communicated to the upper extremities; and thus, the young branches becoming weakened, droop at every gleam of sun and every breath of wind; and the buds full of a watery juice, without any of the energetic qualities of a wholesome sap, either wither and fall from their stalks, or only half open into flowers which have neither colour nor flavour.—It is not to the roots, but it is to the atmosphere, that the rose of the watering pot should be turned. It is in a pure air, sufficiently charged with water, that plants (especially those whose organization, by reason of their broad, stiff leaves present the greatest quantity of green surface) like to seek their means of life and growth—a benefit easily procured for them, by only paying due attention to the aspect in which they are placed during the summer season. That of the north is the most favourable; the air possessing a greater elasticity and freshness; and this exposure becomes the more necessary, the nearer we approach the Tropics, where, even a northern aspect, under the best of circumstances, is not always a sufficient protection against the destructive effects of atmosphere which is, at all points, reduced to a nearly scorching temperature.

Supposing the position, in which the Camellia is intended to pass the fine season, to have been chosen under the most favourable arrangement, there will still remain one danger to be guarded against, which is that of the continued heavy rains to which in general, the finest months in the summer are frequently subjected, the bad effects of which can only be obvia-

ted by removing the plants under shelter as long as the unseasonable weather may last—an attention which is of the first importance.—For it is impossible to lay too much stress on the fact, that an excess of wet is in direct opposition to the flowering of the Camellia. Looking, therefore, to their protection from it, and the avoiding it in every way, as the main points towards success in their cultivation, care must be taken to house the plants earlier than usual in rainy summers, from the increased danger arising from the combined effects of cold and wet operating at the same time, and that the earth in the pots may have time to dry, gradually and sufficiently, in the green-house, before the cold season sets in.

If the new potting of the plants should have been effected during the spring months; after the rising of the sap which immediately succeeds the flowering; the flowers, which show for the following year, will be more firmly attached; the buds will grow fuller and stronger; and the flower, when it opens, will be found more perfect and more brilliant than if the new potting had been put off till towards autumn.

At every potting, it is necessary to pay great attention to the state of the roots, which are very liable to turn black and rot; especially, if the pots happen to be placed upon a compact, wet soil, or one that is much liable to worms. The most proper place for the pots (when out of doors) is on a sandy soil which does not hold water, and they should only be sunk a very little in the ground; or, what is still better, they may be placed on a pavement, formed of porous bricks. When in the green-house they should be set on that part of the stage, which is nearest the glass (or on a stage or shelf so fixed, purposely,) and every part of the plant should be alternately and successively exposed to the light, by frequently turning the pots during the winter.

Destined, from the extreme beauty and unrivalled delicacy of their flowers, to become the ornament of our drawing rooms, in winter, the Camellias should not be allowed to remain there too long, the air of all close apartments being more injurious to them that it is to the orange, or the Daphne.

If, notwithstanding all the attentions here pointed out, some few, among a number of Camellias, should be weak and sickly, or not in such full vigour as should be expected, they may be easily and quickly restored by turning them out of the pots into the open ground for a few months, in a soil properly prepared and in an appropriate aspect, taking care to preserve the ball of earth entire, in taking them from the pots. Their return to a healthy state will be soon visible, by the fine growing appearance which they assume, and as soon as this change takes place they should be immediately replaced in the pots, and this period will arrive when the roots have drawn a full supply of nourishing sap, but before they have stuck into the surrounding new ground. By the same process a variety of other plants may be restored to a healthy state.

These details, though they will probably be thought tedious, by the well informed practical gardener, cannot fail to please the amateur, who, from want of experience is very apt to fancy that because he has got a new species of plant, he must necessarily invent an especial new mode of cultivating it, in this view of the subject we have not hesitated to publish them at length.

For the N. Y. Farmer and Horticultural Repository.

ART. 89.—*An improved variety of Ten-week stock.*

It is generally very interesting to the lovers of fine flowers to be informed of the origin and progress of the improvements introduced among the finer sorts of them. The Stock July flower when in bloom exhibits a most beautiful appearance, and emits such a delightful fragrance as entitles it to a rank in the heraldry of Flora, almost on level with the inimitable rose—And it would perhaps not be saying too much should we aver that the variety about to be described exceeds every other of the species as much as the rose does all the other families of the flowery world; I am aware that the first cultivators of any improved variety of plants, are very apt to overrate their own claims and merits, and that more modest and obscure cultivators might have a just claim to even superior improvements than those foisted upon public notice by more forward and ambitious gardeners. And that there may not be such in the present instance we have no desire to dispute; yet as we have taken no inconsiderable length of time, and employed no small care and trouble, in endeavoring to find out whether this individual variety, or any other equal to it, had ever been known to exist previous to or independent of its origin under our own cultivation at New-York, without being able to discover a single instance of either. We, therefore, have concluded that it has been our gratifying lot to have been the first cultivators of a variety of the Stock superior to every other that has ever come under the observation of any gardener or botanist to whom we have exhibited it or conversed with on the subject. In the year 1807 more than twenty years ago, I raised several hundred plants of the ten-week stock, from one paper of seed that I obtained of Mr. Michael Floy Nursery and Seedsman. The plants were the most single straggling looking rascals I ever grew. But as seeds obtained at the shops are generally suspected, I had raised another batch of them, in hopes of raising enough of good double ones, for I calculated upon two thirds of them being single, and not worth

the saving, and in this I was not disappointed, yet after having made Mr. Floy a severe and I hope seasonable lecture, on the abominable trash of stock seed he had sold me, I observed among them four double ones different, and I thought better than I had ever seen before. But, alas, they would produce no seed, and the whole multitude of the wide placed long pedicled narrow sharp pointed flower buds were watched for and examined with an anxiety at the recollection of which, I have often since laughed heartily. At last, two stubborn dwarf stinted looking dogs began to open their close plane short pediciled bloom. Their seed had certainly been produced in the same pericarpium, as that of the four doubles. I forgave Mr. Floy for my disappointment in all the rest, and even sold him one of the single and one of the double new sorts for two dollars, upon the *express condition* that he was to raise none of the seed of that sort for sale, nor to part with any of the single flowering plants upon the pain of losing his lugg, alias his right ear. Which condition I believe he faithfully fulfilled, for a period of more than seven years, during which time very few of the double plants that either he or I raised were sold for less than a dollar, and some good plants at pinching times after brought us nearly two. At last about the year 1815 some of the single plants found their way in a manner not *necessary to be described* from my garden to several of my neighbours who afterwards informed me of the circumstances, on which we sometimes to this day pass some hearty jokes when we meet together. About fifteen or sixteen years ago, I sent some of the seed of this sort to London by a gentleman of Middletown, an experienced gardener, who afterwards informed me it was much admired there, and had not, so far as he could learn, ever been known there before. Mr. Thomas Hogg, now a nurseryman in this city, who is well acquainted with the horticultural productions about London, considers this to be a superior and distinct variety from those formerly raised in England. I have also sent seed of it to Mr. Stewart Murray, of the Royal Botanic Garden of Glasgow, who has acknowledged in letters I have received from him since, that it is the finest sort he ever saw. But in a letter I received from him lately, he says he thinks it either degenerates there, or he had lost the breed. That certain plants succeed better in particular situations than others, is well known to horticulturists; and New-York may well be proud of this daughter of Flora, for its cultivation here has succeeded to such a degree that many instances are to be found of single flowering plants producing numbers of double flowers, as the specimens I exhibited at the meeting of the New-York Horticultural Society, about a week ago, clearly proves. And this is a circumstance which I have never heard of taking place in any of other variety of the stock but this, nor in any other part of the world but New-York. Seed from these plants which have the double flowers intervened, generally produce four double plants to one single, and sometimes they come almost all double together. All these plants retain a strong short stocky form; the flowers are almost sessile on the peduncles, and are of such a large size and so close together, that the whole plant when in full bloom has the appearance of one universal expansion of flower petals. And in this state, they continue for months together; nor are the plants like the ten-week stocks, lost when their bloom is over, but for successive years do they continue to produce their rose coloured blossoms. It has long been known in this place by the title of Wilson's Stock, and until some other plan can be, upon better authority, suggested for its origin, I see no impropriety of styling it the *New-York Stock*. It will be likely long to continue to decorate the gardens and green houses in this place, and it has already well repaid all the pains bestowed upon it by

WILLIAM WILSON.

Murray Hill Nursery,
May 27, 1828.

ART. 90.—*On the employment of Liverwort as a Cure for Consumption.*

The public attention is from time to time excited by the most marvellous accounts of the virtues of certain infallible specifics for the cure of all sorts of disorders. The fashionable remedy of the present day is called Liverwort, (*Hepatica triloba* of Botanists), which has been triumphantly brought forward as a sovereign cure for consumption. That a disorder which has baffled the skill of the medical profession with all the resources of chemical science at their command, could be made to yield to the simple properties of one of our commonest weeds, could never obtain credence with those who refuse to believe that powerful effects of any kind can be produced without adequate causes. It would require no great foresight to predict that it will follow the course of all fashionable nostrums, and will speedily be consigned to the catalogue of specifics once notorious in their day for their infallible virtues, but now obsolete and of no efficacy. In the mean time it may abuse the hopes of those who from the natural credulity of sickness and suffering, are disposed to lend a favorable ear to any prescription which promises relief.

Those who are acquainted with the Liverwort, are sensible that it is a plant whose properties have very

little active character; but even these are of a nature which render them improper to be used in consumptive cases. It belongs to a class of plants which are distinguished by their acrid qualities; some of them are highly caustic, and are used as blisters or vesicatories; others are employed as tonics, and are stimulants, as is the case with the Hepatica; some again are ranked among poisons. It is certain however, that very few of them retain their former places in the materia medica, being superseded by other medicaments either of more energetic qualities or less doubtful in their operation.

It is not, therefore, the regular physician who requires to be told that a specific of this character is not likely to be productive of good effects in lung complaints; but it is necessary to warn those who suffer themselves to be made the subjects of the experiments of the ignorant and unskilful, that this vegetable, although apparently harmless in its nature, may prove to be highly pernicious in their particular cases. The evil tendency of this, and of similar sovereign panaceas, as they are called, is to produce present relief at the expense of future pain, and the certain acceleration of the progress of disease.

In corroboration of our opinion on this subject, we subjoin an extract from a notice on the employment of this remedy, with which we have been favoured by a physician, whose professional eminence and extensive practice entitle his assertion to the most implicit confidence.

The plant called liverwort, has recently acquired, through the medium of the newspapers, considerable celebrity as a remedy for phythysis. Its reputation is altogether unmerited; its administration must be pernicious in ninety-nine hundredths of the cases in which the lungs are affected. *Its operation is decidedly stimulant*; and the faculty well know how few pulmonic patients will bear remedies of that description. A patient of mine insisted upon using the liverwort in spite of my remonstrances. It gradually accelerated his pulse until a spitting of blood was the consequence. This satisfied him, the plant was abandoned, and his health immediately began to improve. Like other excitants, the liverwort when first taken, improves the feelings of the patient; and hence perhaps, in part, its popularity. Its ultimate effect must in general, however, be such as I have stated.

ART.--91—*Proceedings of the N. Y. Horticultural Society--*

The exhibitions before the Society during the present month, have been of the most interesting description, and calculated to show the emulation which exists among the members to promote the important objects of their institution. We are persuaded, however, that the specimens displayed were but a small part of what might have been brought forward by the individuals who presented them, or other members who have not considered the importance of giving an evidence of their skill in the ornamental or useful branches of gardening. We take the liberty of reminding the members, of the importance of these exhibitions, in exciting competition and in diffusing a taste for the cultivation of Horticultural and ciline, and that every member might contribute in keeping alive and increasing the interest of their meetings, by producing whatever vegetable production he may have in his possession that is remarkable in its kind.

April 29.—Mr. E. H. Warner exhibited a numerous collection of *Hyacinths*, best sort presented.

Mr. Phelan, 10 varieties of *Tulips* and a remarkably fine *Hyacinth*.

Mr. Kinnersly, 5 sorts of *Narcissus* and a *Polyanthus*.

May 6.—Fine cucumbers of large size presented by Mr. Phelan, raised by himself.

Mr. A. Smith, from his garden and nursery, near Newark, N. Jersey, exhibited a collection of splendid flowers, among which were very large and beautiful roses, a superb double flowering Chinese apple, snow drops, &c.

Mr. Wilson exhibited a number of native plants cultivated in his garden, as examples of the extreme beauty and ornamental properties of our indigenous Flora. The *Tiarella cordifolia* with its large spike of snow white flowers; the *Mitella diphylla*, remarkable for the elegant fringe of its petals; the *Dalibarda fragarioides & Trillium erectum*, were the principle specimens among them.

May 13.—The object of chief interest at this exhibition was the splendid stock, July flower, the production of Mr. Wilson, containing a double flower exceeding two inches in diameter. An account of this beautiful plant will be found in the present number.

May 20.—Pœonies and other seasonable flowers were exhibited by Mr. A. Smith.

Mr. Hogg exhibited a collection principally of acclimated foreign plants, such as

Polemonium Cœruleum,
Valeriana officinalis,
Ulex Europeus,
Fumaria nobilis,

and several species of *Iris*.

Mr. Phelan exhibited four sorts of Lettuce, large heads.

Specimens of early York cabbage, mushrooms, early potatoes and cucumbers.

Dr. Hosack exhibited some beautiful specimens of various kinds of flowers from his garden.

Mr. Wilson specimen of *Orchis spectabilis*, a native plant cultivated by him, and also a stock containing on the same stem single and double flowers.

May 27.—Mr. J. Curr exhibited a lot of best early peas and some large heads of early lettuce.

Mr. Wilson displayed a variety of beautiful flowers, among which were

Antirrhinum majus,
Anchusa officinalis,
Cytisus scoparius, scotch broom,
Lychnis floscuculli, double,
Kerria japonica,
Lonicera tatarica,
Lasiopetalum, purpureum.

May 27.—The exhibitions before the committee of inspection, consisted of early peas, lettuce, &c. by Mr. J. Curr, and various flowers from the garden of Mr. Wilson.

A specimen of a seedling geranium, raised by Mr. George Wilcox of Albany, was presented, which was much admired for its beauty and the magnitude of its flowers. This plant, named "Wilcox's Clinton," is certainly one of the first of that splendid genus.

The regular meeting of the society was held this evening. Among other business, in accordance with the practice of the society subjecting to the examination of a committee such works of the members as are presented to them, the committee appointed to report upon the late work of Mr. Wilson, entitled, "*Economy of the Kitchen Garden, the Orchard and Vinery,*" presented the report which was read and accepted by the society. As this testimony respecting Mr. Wilson's work, comes from those who are entirely disinterested and perfectly competent to form an opinion, it may be relied upon as a conclusive estimate of its merits. The report states in substance, that the work may be read with much pleasure and profit as being what it professes, a treatise on American Horticulture. That to execute a work of this kind, requires a long experience, intimate acquaintance with the subject and knowledge of the peculiarities of our soil and climate, in all which requisites Mr. Wilson is particularly well qualified for the task he has undertaken. The manner in which he details the result of his experience, is entitled to much praise, as being quite in the spirit of a man, who is untrammelled by old and obsolete opinions, or misled by wild or visionary plans of improvement.

In conclusion, the report notices the "lucid and accurate arrangement by which the work as a whole, is characterised, and last, though not least, of its merits, the simplicity, the correct taste, and the sound reasoning which are the distinguishing features of this little work, combine to recommend it as a most valuable manual to the practical gardener, and at the same time as the fountain of much pleasing information and amusement to the amateur horticulturist."

ART.—92—*Miscellaneous and Domestic Summary.*

Philadelphia.—Our fellow citizens of Philadelphia, whom we have been accustomed to behold among the leaders in matters of taste and science of our country, we are gratified to perceive, have turned their attention to the promotion of horticulture by means of public societies. No section of our union perhaps presents more favorable points for such experiments, and whoever has paid a visit to Philadelphia, will accord with us that the taste of her citizens has abundantly availed themselves of their advantages.—The valuable, extensive, and truly scientific establishments of Messrs. Landreth, of Mr. Carr, of Mr. Hamilton, and others, are sufficient proofs of the attention which is there paid to the science and the practice of gardening in all its branches; and the success with which horticulture is practised may be rendered evident by a walk through the markets of the city, which never fail to delight the stranger from the display of luxuriant fruit and beautiful flowers, which are exhibited with the neatness and characteristic taste of the Philadelphians.

We augur the happiest results from the establishment of a society whose object it will be to collec and to embody the experience of members who are so capable of instructing in this art, and publish them for the general benefit of all concerned. We subjoin the following extract in relation to the organization of the society.

Horticultural Society.—Agreeable to public notice, the Horticultural Society met on Wednesday evening, and elected the following gentlemen officers: President, Horace Binney; Vice Presideuts, James Mease, M. D. Mathew Carey, David Landreth, N. Chapman, M. D.; Treasurer, Wm. Davidson; Corresponding Secretary, Samuel Hazard; Recording Secretary, D. S. Brown; Acting Committee, George Pepper, Nicholas Biddle, Thomas Biddle, R. Patterson, D. B. Smith, Moses Brown, M. C. Cope, Thomas Astley, David Landreth, Jr. Thomas Hibbert Thomas Landreth, Joshua Longstreth.

To destroy Bugs.—In the month of June, when the yellow speckled bugs commence their depredations on the cucumber and melon vines, small blazing fires should be made in different parts of the garden, The bugs will fly into them and thus be destroyed.

There is an apparent discrepancy a

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ncy at this point.

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book is found in the collections.

Potato Flour.—A Dorsetshire farmer, who has recently made some experiments in the preparation of this article, states as the result, that a bag of potatoes (240 bls.) will produce 60 lbs. of flour; and that plain puddings made with two thirds potatoe flour, and one third wheat flour, are superior to those made wholly of the latter. On ordinary lands, 150 bags will be produced from an acre, so that 6000 lbs. of flour may be obtained from an acre of land.

Soft shelled Almonds.—Though thousands of dollars leave the United States annually for our supplies of this nut, from France, Spain and Italy; and though nearly thirty years have transpired since it was established by experiment, that any part of Georgia will produce almonds of as good quality as the most favored spots on the shores of the Mediterranean, yet the generality of our citizens are not aware that the tree will flourish in our climate. The following extract of a letter, written at Shippensburg, Penn. on the 17th ult. will show that the almond succeeds in a much colder latitude than that of Georgia. "Last spring I planted twenty or thirty soft shelled almonds—thirteen vegetated perhaps a month after—twelve of them have come safe through the winter, and seem to stand our climate as well as a peach tree. They are now from twelve to twenty-five inches high; and covered with green leaves of this spring's growth." If the citizens of Georgia were but to call into requisition the blessings which nature has showered upon them, no spot upon earth would abound more in the productions of utility and luxury than our state.—*Geo. Pat.*

Albany.—The nursery grounds of Judge Buel, about two miles from the capitol, bids fair to become one of the most valuable and important establishments in this country, and one that will be of the most extensive benefit, particularly to the northern sections of the New England and middle states. It consists of about eighty acres of ground, a considerable portion of which is occupied as a nursery, embracing an immense variety of choice fruit and ornamental trees. The former have been inoculated or grafted with the greatest care and skill by himself and his partner, Mr. Wilson, from cuttings obtained from Europe, and particularly from the London Horticultural Society, as being of the most superior kinds. The greatest attention is paid in preserving the exact names of every variety by careful diagrams of the garden, and labels, so that no errors can occur. Their culinary, ornamental and green house plants afford all the varieties which they are encouraged by the taste of the citizens to cultivate.

We were also much gratified, on a recent visit to Albany, with a number of other establishments of private gentlemen, who employ the advantages of leisure and fortune in the delightful recreatiion gardening.

The collection of Mr. George Wilcox, though not of great extent, is unrivalled for the beauty and number of choice varieties of several select plants. His geraniums, in particular, of which he has nearly 200 kinds, are remarkably fine.

The Season.—Notwithstanding the late snows and frosts, the prospects of the farmer are very encouraging, particularly for grass and fruit. Peaches, in all the counties bordering on the Hudson, promise abundantly. As yet the season has been rather wet for corn.

☞ The following paragraph we re-publish with pleasure, and regret that we have forgotten the paper from which it was extracted.

"*Muscadine Wine.*—A gentleman of Lauderdale county, Alabama, made, the last season, a considerable quantity of Wine from the Muscadine, or Muscadine Grape, which he says resembles, in flavor and in colour, the best Madeira wine, and which, he believes, only wants *age*, to render it as fine as any wine he ever drank. Muscadines, (*vitis rotundifolia*,) grows indigenously, pretty plenteously, on and near the banks of most all the rivers and creeks of North-Carolina; and it might be worth the while of some of our enterprizing citizens, to make an experiment in manufacturing a wine from them, such vast quantities of which are imported from abroad, and consumed among us. If we pretend to render ourselves *independent* of foreign nations, let us not stop half way—but manufacture our *drink*, as well as our *food* and *raiment*."

All the N. American species of vine are polygamous and dioicous; the male flower mostly contains an abortive germ. It is possible that hybrids betwixt the European vine (*vitis vinifera*) and those of the U. States, would better answer the variable climates of N. America, than the unacclimated vine of Europe. When a portion of the same industry shall have been bestowed upon the cultivation of the native vines of America, as that which has for so many ages and by so many nations been devoted to the amelioration of the *vitis vinifera*, we can then no longer imagine the citizens of the United States indebted to Europe for the luxury of wine. It is not however in the wilds of uncultivated nature, that we are to obtain varieties worthy of cultivation; were this the case Europe would to the present have known no other *malus* than the worthless and austere crab in place of

e finest apple, no other *Pyrus* than the acrid and edible Pyraster, or stone pear, from which cultivaon has obtained all the other varieties. It is from e ed that new and valuable varieties are invariably to e obtained.—*Nuttal.*

Potatos.—We are informed by a gentleman, says the Dumfries Journal, that early potatos may be produced in great quantities by re-setting the plants after taking off the ripe and large ones; and that he has re-planted them six different times this season, without any additional manure, and instead of a falling off in quantity, he gets a larger crop of ripe potatos at every raising than he obtained at the preceding trial. These plants have still on them four distinct crops, and he supposes they may continue to vegetate and germinate until they are stopped by the frost. By this means he has a new crop every eight days, and has had so for six weeks past.

Parsnips.—Some very useful hints on the culture of parsnips, have recently been offered to the agricultural world, by Dr. M'Culloch, who strongly recommends a sedulous imitation of the German practice, in regard to that root. It appears that a good crop in Germany will yield about 54,000lb. per English acre, and if this be a lighter crop than the turnip affords, it is much superior in point of utility, which we consider that the quantity of sacharine, mucilaginous and consequently nutritious matter in the parsnip, bears a much greater proportion to the quantity of water contained than it does to the turnip.

Bartlet Pear.—This pear weighs about 10 ounces when at full size, shaped like a Bon Chretien, very yellow, and slightly tinged with red on one side; quite juicy, and by many considered a first rate fruit. It is not, however, equal in flavor to the Seckel, or even to the Boston Epergne, but its size and beauty render it greatly admired. It much resembles in flavour and consistence the St Michael, and is said to command a high price at market. It is no doubt a native, and appears to have originated in the vicinity of Boston; and it does not seem at all strange that many fine new pears should have originated there, as that city, and its environs, has for a long period been inhabited by a great many gentlemen extremely intelligent on the subject of horticulture, who took much pains, at an early date, to introduce the choicest fruits, and particularly the finest varieties of pears, of which fruit they are skilful connoisseurs.—*Prince on Horticulture.*

Vinegar.—The method of making this liquid out of cider, wine, &c. is too generally known to need any description; but it is not so generally known that a very sharp vinegar may also be made out of whey. The method of making it, as described by Mr. Genet, is very simple. "After having clarified the whey, it is poured into casks with some aromatic plants, or elder blossoms, [as suits the fancy,] and exposed in open air to the sun, where it soon acquires an uncommon degree of acidity." Vinegar may also be made from the juice of elder berries, mixed with a suitable proportion of water, and exposed to the sun, as before mentioned. It may also be made from the juice of the black-birch, or of the maple, when either is boiled down sufficiently; or from the juice of beets, carrots, turnips, potatos, &c. when boiled and the juice pressed out, and exposed in like manner.—*Farmer's Assistant.*

The Angora Goat, a native of Turkey, is chiefly valued for its exquisitely fine hair down, which grows under its coarse hair, and of which the Cashmere shawls are manufactured. The down is obtained by gently combing them. A considerable number of this breed were imported to France from Persia, in 1819, and stationed at St Omers, with a view to their increase, and the establishment of the shawl manufacture. The kids of this flock are said to be abundantly covered with down and hair, and superior in strength and appearance to indigenous French kids of the same age. It is a common opinion, that the down of this goat degenerates when the animals are removed from the pasturage of Angora; but this is likely in part to arise from the neglect of cleaning and washing them, which at Angora is so assiduously attended to. By a late report of M. Terneaux to the Paris Agricultural Society, the French Angoras have increased in number, and prosper equally with the native variety."—*Loudon's Encyclopædia of Agriculture.*

It is probable, says the Editor of the American Farmer, that the race might be introduced into the United States, through the agency of our hospitable and patriotic Minister at Paris, Mr. Brown.

Ditching or Draining.—In a recent conversation with a practical agriculturist of the county of Albany, he related to us his plan of ditching, which struck us as having some decided advantages. Through a piece of ground, which was so miry and wet as to endanger cattle, he made a ditch five feet deep, sloping away to twenty-five feet wide at the top. This afforded such an uninterrupted outlet for the water, that in a few years the ground became perfectly tillable, and the most valuable on his farm. The common way is to dig a narrow ditch of perpendicular sides. In heavy floods it becomes filled up by the washing away and the falling in of the sides, occasioning much labour and expense to the farmer.—Horses and cattle are liable to injury—and another

disadvantage is, that it cannot be crossed with a waggon without a bridge. But those with sloping sides obviate all these difficulties. The extra labor at first is abundantly compensated by the permanency of the work.

Large Sheep.—Mr. John Brientnall, of Rahway, New-Jersey, called at our office a few days since, and exhibited some fine wool, of 20 inches in length, taken from an improved Dishley Buck, which he imported from England. The sheep now weighs 252 lbs. He will be exhibited at the Fulton market in his fleece, at the meeting of the New-York County Agricultural Society, on the 25th of June, and on the following day without his fleece. In our next number we will give a drawing of him, with some additional and interesting particulars.

New-York County Agricultural Society.—The Society offer the following premiums to be awarded by a committee of the board of managers, for the best specimens of BUTTER, which shall be exhibited at the Fulton and Washington Markets, at 8 o'clock on the morning of the 25th day of June, inst. viz.

At the *Fulton* Market,	1st	premium,	$15
	2d	do.	10
	3d	do.	10
	4th	do.	5
At the *Washington* Market,	1st	premium,	$15
	2d	do.	10
	3d	do.	10
	4th	do.	5

The regulations to be observed in awarding the premiums will be :

1st. That candidates for the same, must be persons, who usually supply any of the city markets with summer butter.

2d. The article must be formed into rolls or prints, of not less than *one*, nor more than *two* pounds—the quantity offered by each exhibitor to be not less than 12 lbs.

3d. Competitors in one market, are not to be candidates for premiums in the other.

4th. The style and neatness of the exhibition of the article as well as its quality, will be taken into consideration by the Committee.

The former premiums given by the Society for the improvement of this article, have, it is believed, caused greater care generally to be taken in the management of dairies—multiplied ice-houses among the farmers, and excited fair competition, as beneficial to them as it is solutary to our citizens. Per order.

J. ADRIANCE, Sec'y Pro tem.

NOTE.—The places of deposit for examination will be designated at the markets.

Manuel on the Growth and Manufacture of Silk in toe United States, transmitted to the House of Representatives by the Secretary of the Treasury.—This is a work of 220 pages, with several plates, embodying much information. We shall not now pretend to give our opinion concerning its value and merit, expecting a review of it for our next number, by a gentleman whose long and familiar acquaintance with the subject eminently qualifies him for the undertaking. We shall merely give the subjects of the chapter.

History of Silk; Natural History of the Silk-worm; Varieties in Silk-worms; Of other Caterpillars producing Silk; Of Mulberry Trees. Of the Laboratory; The art of rearing Silk-worms; Of the small apartment in which the new hatched worms are to be received; Of their removal into the laboratory or elsewhere; Of the rearing of Silk-worms in the four first ages; Of rearing Silk-worms in the Fifth Age, until they prepare to form their cocoons; Of rearing Silk-worms until the cocoon is perfected; Of the Sixth Age of Silk-worms, or of the Chrysalis; Birth and coupling of the Moths, laying of the Eggs, and their preservation: General view of all the facts stated in this work, immediately connected with the art of cultivating Silk-worms; Abstract and condensed view of the mode of rearing Silk-worms; Diseases of Silk-worms; Particular Diseases; Preparations for Reeling the Silk; Mode of Reeling Silk from the best cocoons; Of disbanding the silk from the reel, tying it in skeins, preparation of the silk for use; Doubling Machine, with a cut; Of the preparation of the waste silk, spinning inferior qualities; Of the preparation of the silk to make organzine. Explanation of the Plates; Notices of various Machines, and recent improvements in Silk Machinery; Extracts from minutes of evidence before the House of Commons, on the Silk Trade and Silk Manufacture; Appendix, on Dying Silk; Mode of making sewing-silk, and silk twist in Connecticut.

Bee Hives.—The excellent hive, invented and successfully employed for a number of years, by Mrs. Mary Griffith, of New Brunswick, New Jersey, is likely soon to supersede every other now in use.

The following description of her hive, is from the pen of the inventress :

"The Charlieshope hive, is thirteen inches square at the top; but as the sides decrease in width to the bottom, the base is narrower, being only seven inches on the flanks, and thirteen inches in front and at the back. The hive is in height about twenty-six inches in front, and twenty behind. Of course, the floor is an inclined plane. It is fastened behind with hinges, and at the sides with hooks and staples. The roof or cover is, like the rest of the hive, made of common inch board, with cleats screwed on the

top, to prevent it from warping. The top is screwed to the hive in two places. Three holes are bored in this cover, of one inch diameter, and about a quarter of an inch apart, on a line with each other, and bees would otherwise build in such a manner as to close them and prevent their ascent to the upper box, when that becomes necessary. The under part of the top or cover is rough, as the *propolis* on bee-glue does not, at all times, adhere sufficiently well to a smooth surface. Every other part of the hive is as smooth as possible, and the whole hive, box and all, is well made and joined. The upper box is thirteen inches square, and the width of a board deep, from eight to ten inches. This box is likewise smoothly planed, excepting the inside of the top board, which is rough.

"The box sits snugly on the top of the hive; the cleats are placed in such a manner on the upper surface of the cover, as to fix the box firmly.

"When it is ascertained that the hive is full of honey, the plugs in the three holes are taken out. The bees may then ascend, and if the season be favourable, they will fill the box with comb and honey.

"About three or four inches from the top of the front and back of the hive, are two cleats, which serve to sustain the hive in a moveable frame, made of narrow slats of wood, which frame enables any one to carry the hive from place to place, as the hiving and other operations make it necessary. The hives are likewise suspended by these cleats, on permanent joists or scantlings in the apiary.

"Hives thus suspended, are out of the reach of mice, and they are, too, better, on a variety of accounts. The opening and shutting of the floor allows of daily inspection. The floor can be cleaned often. The inclination of the sides and bottom allows the perspiration of the bees to flow off rapidly. This is a great point gained, as dysenteries are induced by the absorption of such acrid matter. The slope in the floor enables the bees to remove all extraneous matter, and to defend themselves better from robbers and intruders.

"The entrance to the hive is about three inches wide, and half an inch high. A door of wire, the meshes of which are small enough to prevent the entrance of the miller, rests behind two door posts made of needles. These needles are driven into the floor close to the entrance. The little doors are always put behind the needles as soon as the bees are in for the night; and they are removed at day-light. About the middle of April, the doors are first used; and they are discontinued in two months. After the middle of June, the floors are let down, and are suffered to hang until day-light, when they are gently raised up and hooked."

Wheat and Barley.—The Columbian Institute has just received from Tangier, in Morocco, some wheat and barley, which, it is supposed, may form an useful addition to the stock of those grains already in the United States and Territories south and south-west of Washington. The Institute has also received some seeds and fruit of the date, which have been sent under a belief that they may be successfully cultivated in the most southern parts of the Union.—Tangier, whence those grains and seeds are brought is in lat. 35 deg. north. Though black frosts are rare, white frosts are frequent there in January, February, and March.—*Nat. Jour.*

Strawberry.—The common strawberry in a ripe state makes a most excellent dentrifice, sweetening the breath and preserving the gums. It is said that the celebrated Linnæus cured himself of gout by a persevering use of strawberries as an article of diet.

Potatos.—Many farmers are in the habit of giving raw potatos to all kinds of stock; but they are of a watery and griping nature, and accidents have frequently happened from their use, before the cattle have become accustomed to them. For milch cows they are very bad, purging them and rendering their milk too thin and poor even for suckling. If given raw to fatten oxen, good hay and bean meal should be allowed to counteract the watery quality of the roots. There is, however, much difference in the nature of potatos, and the mealy approach nearest to the nature of corn; the yellow afford the strongest nutriment.—*S. Magazine.*

ART. 93.—*Summary of Foreign Intelligence.*

Adansonia digitata; Bombaceæ. A tree of Senegal, Egypt, and Abyssinia, of moderate elevation; but whose trunk is from 20 to 50 feet in diameter, soon dividing into branches of great size, bearing a dense mass of digitate leaves, with axillary flowers, solitary, very large, with white petals and purple anthers. There can be no question of this being the largest known tree. Though introduced to Britain so long ago as 1724, it has never flowered, and is not likely to do so in our stoves, without more room than can in general be afforded. The flowers are handsome on their first expansion, but put on a very different appearance at a more advanced period; both flowers and fruit are pendent. Humboldt speaks of this tree as "the oldest organic monument of our planet." Adanson makes the following calculation of its age, diameter of the trunk and height.

A treel year old is 1 or 1 1-2 inch in diameter, and 5 feet in height; 20 years old is 1 foot in diame-

ter, and 15 in height; 30 years 2 feet, 22 feet height; 100 years 4 feet, 29 height; 1000 years 14 feet 58 height; 2400 years 15 feet 64 height; 5150 years 30 feet 73 height.

The roots are of an extraordinary length, with numerous ramifications. Adanson found the taproot of a tree, whose trunk was 77 ft. in circumference, 110 ft. long. The branches spread out drooping at the extremities, and are so entirely covered with leaves as to form a nearly hemispherical mass of verdure, from 140 to 150 ft. in diameter, and from 60 to 70 ft. in height. (See the vignette in *Macartneys' Embassy to China*, p. 141.) "The wood is pale-coloured, light, and soft, so that, in Abyssinia, the wild bees perforate it, for the purpose of lodging their honey in the holes, which honey is rekconed the best in the country. I know not that the wood itself is applied to any particular use, but the negroes on the eastern coast of Africa employ the trunks in a certain state to a very extraordinary purpose. The tree is subject to a particular disease, owing to the attack of a species of fungus which vegetates in the woody part, and which, without changing its colour, or appearance, destroys life, and renders the parts so attacked as soft as the pith of trees in general. Such trunks are then hollowed into chambers, and within them are suspended the dead bodies of those who are refused the honour of burial. There they become mummies, perfectly dry and well preserved, without any farther preparation or embalmment, and are known by the name of *guiriots*. This plant, like all the neighbouring order of Malvaceæ, is emolient and mucilaginous in all its parts. The leaves, dried and reduced to powder, constitute *lalo*, a favourite article with the natives, and which they mix daily with their food, for the purpose of diminishing the excessive perspiration to which they are subject in those climates, and even the Europeans find it serviceable in cases of diarrhœa fevers, and other maladies. *Louden*

Mimulus moscatus, Musk-scented Monkey Flower; Scrophularineæ. A truly charming hardy perennial; from Mr. Douglas to the Horticultural society. "It was found growing sparingly on the margins of springs in the country about the river Columbia, in North-west America. The whole plant is covered with a soft glandular hairiness, which emits a powerful but extremely pure smell of musk, that perfumes the atmosphere in hot weather, or if the plant is trodden upon. In the cold months of winter the scent is much less powerful. The blossoms are a clear bright yellow, and appear in profusion during all the summer. To be cultivated in perfection, it should be planted in peat soil, in a shady damp border. It is propagated by seeds, or by divisions of its creeping roots." *Ib.*

Strychnos (*stronnumi*, to overthrow; poisonous effects) nux vomica; Apocyneæ. A middle sized tree, common on the cost of Coromandel, with leaves and flowers not unlike the common dogwood, and berries about the size of a pretty large apple, covered with a somewhat hard shell, of a rich orange colour when ripe, and filled with a soft jelly-like pulp. "Nux-vomica is one of the narcotico-acrid class of poisons, and seems to have a direct power over the spinal cord. It produces laborious respiration, which is followed by torpor, trembling, coma, convulsions, and death. It is fatal to dogs, hares, wolves, foxes, cats, rabbits, ducks, crows, and other birds; and Loureiro poisoned a horse by an infusion made of the seeds in a half-roasted state. Hoffman reports that a young girl, ten years of age, labouring under an obstinate quartan fever, took, at two doses, 15 grains of nux-vomica; she died in a short time, after having experienced extreme anxieties, and having made some efforts to vomit. For a century, nux-vomica has been known as a powerful medicine, and employed in a vast variety of diseases, with different degrees of success. According to Roxburgh, the seeds are employed in the East in the distillation of spirits, to render them intoxicating. The pulp of the fruit is there eaten by birds. In England, nux-vomica is occasionally used by brewers, to impart an intoxicating effect to beer. Paralyses and palsy, both partial and general, as well as various other kinds of debility, have recently been cured or alleviated by the alcoholic extract of this fruit. The preparations known as Strychnine and Brucin, have also lately been very much used; and, as a proof of the importance of the subject in the eyes of Mr. Stephenson and Churchill, no fewer than fourteen pages are devoted to the medical preparations and applications of this plant.

A treatise on the culture of the Vine, and the art of making Wine.

AUSTRALASIA, 1825, pp. 270.

Compiled from the works of Chaptal, and other French writers; and from the notes of the compiler, during a residence in some of the wine provinces of France.

This is the first book which has been printed in N. S. Wales, being 37 years after the first landing in that country. It is a judicious compilation from French and English works on the same subject, and will prove highly useful.

We notice this work chiefly on account of the gardener's calender which it contains, and from which a very good idea may be formed of the kitchen gardening of that part of the world. The spring months in Van Dieman's Land, are September, October and November. Potatoes are stated to be successfully cultivated, putting in the garden crop about the 10th

of September, and the field crop from the beginning of October to the 10th of December. "A garden winter crop may be planted in January or February." New potatoes are generally obtained by the 1st of December, which is there the first month of summer. The Sweedish turnip is said to grow enormously large here; it is sown where it is to remain, and also transplanted. Asparagus is grown with much success.—Cauliflowers "do well twice a year, but are generally planted in the months of August and September;" at no period of their growth are glasses or frames necessary. "Peas and beans may be cultivated near the sea coast in almost any season; but for a general crop, throughout the interior and places subject to frost, they should not be planted earlier than the 1st or middle of July; and it is advisable that the ground should be as strong as possible, and even that a little manure should be added." The climate and soil are said to be particularly adapted for onions, which are sown in the last week of April. The potatoe onion is very productive, and is planted in May, the last week of their autumn. Carrots and parsnips grow to an extraordinary size. Cucumbers, pompions and melons are cultivated with much success; they are raised under glass during the winter and spring, and in summer grown on dung beds in the open air. Cabages do well at any season. Turnips grow to an extraoadinary size. Artichokes are very large. Leeks are transplanted in the month of April. Horseradish, common red radish, lettuce, celery, and shallots, are enumerated as "doing well."

Fruit Gardens.—Under this head it is stated that the produce of grapes is wonderfully great: "that this fruit will no doubt, in the course of a few years, be of considerable benefit to the colony, not only to supply wines for our consumption, but for exportation, as one gentleman last year made upwards of 200 gallons from the produce of his own garden." Strawberries "grow wonderfully to leaf in this country, and are not of certain produce; but the fruit is always very fine. Raspberries "are a favourite fruit, of certain produce, and extremely delicious." Mulberries are highly flavoured, and the tree bears as well as it does in England, if not better. The apple and peach are the two most plentiful fruits in the island. "The apple is so astonishingly prolific, that instances have been known of very young trees having born fruit the season immediately after they were grafted." The The cherry, especially the Kentish, appears to be very well adapted for this climate. Pears are uncommonly productive. Filberts and cobnuts have not yet borne, but walnuts and chesnuts have. The fig tree bears much fruit, but the frosts of autumn set in before it arrives at maturity. The elder grows in several places, snd wine of a very superior quality has already been made of the berries. The green gage and damson plum are becoming plentiful. Currants and gooseberries grow luxuriently. The quince bears abundantly, and the loquat has been introduced, and ripened fruit.

Forrest Trees and Shrubs.—"Sweet brier, English hawthorn, the broom, the furze, and in fact every other plant and shrub grow luxuriantly in this climate, and perhaps more so than in any other part of the world. The English oak, and a great number of other favourite trees, are also growing in many places here in the greatest luxurience. Among those lately introduced into the colony are, the sweet Spanish chesnut, as well as the common horse chesnut, the oak, the beech, the ash, the fir, the Norfolk pine, and the willow."

It is curious to observe the gardening instructions of the almanac of a new country concluding with injunctions to plant timber trees for the benefit of posterity. In new countries cutting down is generally much more necessary than planting; that this should not be the case here, proves how very favourabte the situation is for British emigrants. In point of soil and climate, indeed, we believe Van Dieman's Land to come nearer to England than to any other country in the world, and the consequence is, that every gardening and agricultural plant and practice of England, may be considered the plants and practices of Van Dieman's Land *Ib.*

ART. 24.—*Miscellaneous.*

Sandy Soils.—The proper method to correct the two great openness of sandy soils, is to mix them with clay, which is the most tenacious of all soils, and as an earth is compounded of alumina and silex, besides being generally found mixed with various constituent parts, both fossil and mineral, which causes it to abound in the food necessary almost to all plants. Where clay hills or bottoms therefore are contiguous to sandy soils, the remedy is at hand, and it ought to be liberally carted on to the surface, well and judiciously mixed, and ploughed deep in; for by that means an artificial tenacious soil is formed, and deposited at a proper depth, to arrest the moisture, and the essential parts of vegetable and animal matter within reach of the roots of plants. Where clay cannot be conveniently obtained, sometimes lime may, which answer a very good purpose in some soils. *Memoirs*

Profits of a Vineyard.—Colonel Aldum, near Georgetown, D. C. from two and a half acres, in 1826, cleared between eleven and twelve hundred dollars; and, on an average of ten years, after the three first, has found the vine to yield four hundred gallons to the acre.

Instinct.—When caterpillars, observes Mr. Smellie, are shaken from a tree, in whatever direction they descend, they all instantly turn towards the trunk and climb upwards, though till now they have never been on the surface of the ground.

The vegetable kingdom offers us examples of simple instinct equally singular and marvellous. Thus the stalk of the convolvulus twines from the left or east by the south to the west, the face being towards the south: the phaseolus *vulgaris*, or kidney-bean, pursues the same course: while the honey-suckle and the hop take a perfectly reverse direction. Who will reveal to us the cause of these differences?

The sphex or ichneumon wasp, in its perfect state, feeds on the nectary of flowers; but as soon as she is fitted to deposite her eggs, she becomes actuated by an appetite of another kind. She first bores a small cylindrical hole in a sandy soil, into which, by accurately turning round, she drops an egg: she then seeks out a small green caterpillar that inhabits the leaves of the cabbage-plant, and which she punctures with her sting, yet so slightly and delicately as not to kill it: she then rolls it up into a circle, and places it in the sandy nest immediately over the egg. She continues the pursuit till she has counted twelve, and has, in like manner, deposited twelve caterpillars one over the other; and repeats the same process till she has exhausted herself of her entire stock of eggs. She immediately closes the holes and dies, intrusting her eggs to the parent heat of the sun. The egg in each separate cell or aperture is soon hatched, and finds its food duly prepared for it. It feeds progressively on the twelve caterpillars, and by the time it has exhausted them, becomes fitted for and converted into a chrysalis: in due time it awakes from its dormancy, works its way to the surface of the earth, throws off its chrysalid investment, finds itself accommodated with wings rises into the atmosphere, feeds on the honey of plants instead of on maggots; and at length pursues the very same train of actions to provide itself with a progeny which was pursued by the parent insect the year before.

We are told by Galen, that on opening a goat big with young, he found one of the young ones alive, which he hastily snatched up, and took it into a room where there were various vessels severally fitted for the purpose, with wine, oil, honey, milk, grains and fruits. The little kid first rose upon its feet and walked; then shook itself, and scratched its side with one of its hoofs: it next smelt alternately at all the dishes before it, and at last fixed upon and licked up the milk. In this case the sense of smell went distinctly in aid of the instinctive search after food, and determined the particular kind; so that the instinct and the sensation co-operated. *Good.*

The generation of Plants and Animals.—Plants, like animals, are produced by ordinary generation; and though we meet with various instances of production by the generation of buds and bulbs, or of slips and offsets, the parallelism, instead of being hereby diminished, is only drawn the closer: for we meet with just as many instances of the same varieties of propagation among animals. Thus the hydra, or polype, as it is more generally called, the asterias, and several species of the leech, as the hirudo *viridis*, for example, are uniformly propagated by lateral sections, or pullulating slips or offsets; while almost every genus of zoophytic worms is only capable of increase by buds, bulbs, or layers; and some of these animals, like the house-leek and various grasses, by spontaneous separation. In effect, most of the kinds now referred to, whether animals or vegetables, may be regarded less as single individuals than as assemblages or congeries of individuals; for in most of them every part exists distinctly of every other part, and is often a miniature of the general form. The various branches of a tree offer a perfect animal. In the latter every distinct part contributes to a perfect whole. The arm of a man has no heart, no lungs, no stomach; but the branch of a tree has a complete system of organs to itself, and is hence capable in many cases of existing by itself, and producing buds, layers, and other kinds of offspring, when separated from the trunk. It is owing to this principle we are able to graft and bud: and M. Trembley having applied the same kind of operation to the animals we are now speaking of, found that, by numerous grafts of different kinds upon each other, he was enabled to produce monsters as wild and extravagant as the most visionary poet or fabulist ever dreamed of. *Ib.*

Perspiration of Animals and Plants.—According to M. de Sauvages, a man of middle stature and age, weighing 146 pounds, takes daily of food and drink about 56 ounces (circiter quinquaginta sex uncias,) his dinner being about twice as much as his supper. In the same period he perspires about 28 ounces; viz. about twelve during the third part of his time in which he sleeps, and sixteen during the two-thirds in which he is awake. It appears certain from the experiments of Gorter, that the weight of the body is more diminished by the same quantity of sweat than of mere perspiration.

Sanctorius, whose experiments of measuring the weight of the body were made in the warm climate of Italy, ascertained, that in that region eight pounds of food received by the mouth were, by the different in-

sensible secretions, reduced to three; making the proportion of insensible exhalation as five to eight. In cold climates, however, it has been determined, that it does not amount to more than two thirds of this proportion; and of either quantity, it has lately been very satisfactorily established, that more than half this secretion has been thrown forth from the surface of the lungs; which I estimated in a previous lecture, and from the experiments and calculations of Lavoisier, as discharging not less than eleven ounces of solid carbon or charcoal in every four-and-twenty hours.

Plants transpire precisely in the same way, and to a much greater extent, through the medium of their leaves; which, while they form a great part of their cuticle, may, as I have observed on a former occasion, be also contemplated as their lungs. Hales calculated that a sun-flower, three feet high, transmits in twelve hours one pound four ounces of fluid by avoidupois weight. Bishop Watson put an inverted glass vessel of the capacity of twenty cubic inches on grass which had been cut during a very intense heat of the sun, and after many weeks had passed without rain, in two minutes it was filled with vapour, which trickled with drops down its sides. He collected those on a piece of muslin, carefully weighed, and repeated the experiment several days between twelve and three o'clock; and estimated, as the result of his experiment, that an acre of grass land transpires in twenty-four hours not less than 6,400 quarts of water. Dalton, for dew and rain together, makes the mean of England and Wales 36 inches, thus amounting, in a year, to 28 cubic miles of water. Grew, in 1821, calculated the number of acres in South Britain at 46,800,000, and allowed a million to Holland. Smith, for England alone, gives 73 1-4 millions in the present day. *Ib.*

Difference of Constitution.—Substances that are poisonous to one tribe of animals are medicinal to a second, and even highly nutritive to a third. Thus, swine are poisoned by pepper-seeds, which to a man are a serviceable and grateful spice; while henbane roots, which destroy mankind, prove a wholesome diet to swine. In like manner, aloes, which to our kind is a useful medicine, is a rank venom to dogs and foxes; and the horse, which is poisoned by the phellandrum *aquaticum*, or water hemlock, and corrosive sublimate, will take a dram of arsenic daily, and improve hereby both in his coat and condition.

But the field opens before us to an unbounded extent, and we should lose ourselves in the subject if we were to proceed much further. It is obvious, that in organic, as in inorganic nature, every thing is accurately arranged upon a principle of mutual adaptation, and regulated by an harmonious antagonism, system of opposite yet accordant powers, that balance each other with most marvellous nicety; that increase and dimiuution, life and death proceed with equal pace; that foods are poisons, and poisons foods; and finally, that there is good enough in the world, if rightly improved, to make us happy in our respective stations so long as they are allotted to us, and evil enough to wean us from them by the time the grant of life is usually recalled. *Ib.*

Sugar Cane.—This is a rich abundant article of the growth of Louisiana, raised chiefly on the coast, the shore of the gulph, the bayous Teche, Lafourche, and Palquemine, and some parts of Attakapas, south of 31 deg. It is propagated by cuttings, or slips of the Cane-stalk called *rattoons*, laid horizontally in furrows, in the latter part of February. The shoots start from the eyes at the joints of the slip. When grown, it resembles the rankest broom corn, or, perhaps, more nearly, Egyptian millet. When matured, it resembles, except the seed, spikes or tassels, that species of maize, called at the north, *Carolina Corn*. When it is cut for the mill, or expressing the saccharine sap, they generally cut off something more than a foot from the top, for slips or *rattoons*, for planting. The rows are planted in rich lands, six feet apart. It requires the richest soil, the vegetable mould of which ought to be at least four feet in depth. There are three or four varieties or species in cultivation here, as the African, the Otaheite, the West Indian and the Ribband-Cane. The Otaheite grows luxuriantly, and ripens considerable earlier than the West Indian, but is said to contain saccharine matter in comparison with that only as two to three. The Ribband cane is new and beautiful species, so called from its being marked with purple and parallel stripes, that have on the stalks the appearance of ribbands. We have seen it of greater size and height than any other species, and, it is said to be highly charged with saccharine juice. Its grand advantage over the other kind is, that it does not require so long a period for ripening, by some weeks, as either of the other species. It can, probably, be raised two degrees farther north, than any other kind yet attempted. They are making trials of this cane in Opelousas, on Red River, and about Natchez. We have seen it this season in a great number of places in those regions. It is not unlikely that it will become acclimated considerably north, even of these points. Cane is understood to be productive in China, where the frost is much more severe than in any places where it has been attempted in this country.

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